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KING COUNTY INTERNATIONAL AIRPORT – STRATEGIC MASTER PLAN TECHNICAL REPORT SERIES

REPORT TITLE:	Outline – Potential Groundwater Hazards and Surface Water Management
REQUESTED BY MOTION #:	9523
LATEST DATE:	March 13, 1996
STATUS:	Needs expanding into full paper after discussions with staff and consultants.
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NEXT STEPS:	See above, then transmit via Pearl and Gary to Council

White Paper Outline
King County International Airport

Status Report
Potential Groundwater Hazards and Surface Water Management

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1.0 Introduction

King County Council Motion 9523 directs the development of a comprehensive financial plan to address aviation, economic development, environmental, transportation, and other needs at the King County International Airport (KCIA). The KCIA/Boeing Field Strategic Management Plan (SMP) is being developed in part to fulfill the mandate of ~~King County~~ Motion 9523. This paper is an initial status report describing activities to date and planned activities related to King County Motion 9523 Section A, Numbers 3 and 4, which state:

A. On or before June 1, 1996, the Executive shall estimate capital needs at the King County International Airport needed to improve the economic development potential of the facility and prepare a comprehensive inventory of the needed capital improvements, including:

3. remove underground fuel tanks and other groundwater hazards, many of which predate King County's operation of the airfield.

4. mitigate surface water runoff contamination of the Duwamish River and surrounding creeks.

2.0 Executive Summary

- KCIA has been proactive in their management of potential groundwater hazards and surface water impacts and is in full compliance with regulatory requirements for these areas.

- In the mid-1980s, prior to establishment of federal and state UST regulations, KCIA initiated cataloging all existing USTs on airport property and established a formal program to inventory and remove or upgrade KCIA owned tanks.

- When UST regulations were first promulgated, KCIA sent out copies of the regulations to all tenants with potential UST compliance requirements.

- Presently, all USTs known to have existed or that are currently present at KCIA have either been removed, or are permitted and in compliance with Ecology regulations.

- KCIA performs an annual inquiry and inventory of tenant permit renewals for USTs.

- KCIA recently evaluated past and present activities conducted at the airport to develop an overview of airport environmental and contamination issues.

- A summary of environmental concerns at the airport, including potential groundwater hazards, was presented in a report titled *Draft Final Summary of Environmental Issues* (BLACK & VEATCH 1995).

- KCIA promptly applied for and received an NPDES permit for stormwater when NPDES regulations were established.

- Additionally, as part of the stormwater permitting process, KCIA distributed information and held tenant meetings to direct tenants to complete the appropriate NPDES permitting tasks.

- KCIA performs a continuing tenant education regarding stormwater compliance and has recently conducted an informational inspection.

- KCIA continues to be proactive in the management of potential groundwater hazards and surface water impacts through further study of these issues and continuous education and evaluation of regulatory changes.

- KCIA is planning the following actions to mitigate potential groundwater hazards and surface water runoff impacts:

    - Continued tracking of UST regulations and tenant UST permits;
    - Continuing a heating oil tank removal or replacement program in anticipation of heating oil tank regulations;
    - Implementation of a more formalized environmental compliance and tenant audit program;
    - Pursuit of cooperative approaches to surface water and stormwater management;
    - Replacement of baffel-type oil/water separators with coalescing plate type separator;
    - Installation of new coalescing plate oil/water separators.

- Replacement of pumps in the two storm water lift stations; and
- Removal of sediment from the storm sewer pipes and structures.

3.0 Potential Groundwater Hazards

- **Potential groundwater hazards include fuel storage tanks, primarily USTs, and known or suspected groundwater and/or soil contamination at specific sites resulting from past site activities.**
  - Federal and state regulations required removal of USTs, or upgrading USTs in compliance with recent guidance.
  - The King County's Motion 9523 requested the removal of USTs and other groundwater hazards.
  - KCIA has been proactive at inventorying and removing USTs and managing other potential groundwater hazards.
  - KCIA's proactive programs of inventorying and removing USTs have produced the greatest environmental benefit by eliminating potential groundwater hazards through source control.

3.1 Regulatory Structure

Applicable federal and state requirements include:

- United States Environmental Protection Agency (EPA) Underground Storage Tanks Technical Requirements, Final Rule, 40 CFR, Part 280;
- Washington State Department of Ecology (Ecology) Underground Storage Tank Regulations, Chapter 173-360 WAC; and
- Ecology Model Toxics Control Act (MTCA) Regulations, Chapter 173-340 WAC.

This section will include the following: a discussion of UST regulatory history and current UST upgrading deadline requirement, a statement that heating oil USTs are presently exempt from regulation, and a discussion of MTCA as requirement that regulates cleanup of soil and groundwater contamination.

3.2 Potential Groundwater Hazards Mitigation Activities to Date

3.2.1 Fuel Storage Tanks

- **Historically, fuel storage tanks have been installed and used for storing heating, automotive, and aircraft fuel supplies.**

(1) there seems to be some repetition throughout the paper about UST's - eliminate or explain better

(2) I think the final product needs to fold in last year's larger report too.

- During World War II (WWII), many barracks and government facilities at KCIA had bunker oil and heating oil tanks.
- Aviation fuel farms were privately operated on leased KCIA property on the east side of the airport, these included fuel farms operated by Union Oil, Texaco, Shell, Standard, and Phillips 66.
- These aviation fuel farms included both above ground storage tanks (ASTs) and USTs.
- A large AST was present on the former City Light property.
- Additionally, fuel storage tanks have been associated with other various commercial and industrial activities conducted at KCIA.
- Automotive service stations were present on KCIA property near the Museum of Flight, terminal building, and Markov site.

- **In the mid-1980s, prior to establishment of federal and state UST regulations, KCIA initiated cataloging all existing USTs on airport property and established a formal program to inventory and remove or upgrade KCIA owned tanks.**
  - Attachment # presents an inventory of previously removed USTs (Must get a copy of this information from Jeff Winters).
  - Prior to the initiation of this program, USTs had been previously removed due to lease expiration or as a result of miscellaneous demolition and redevelopment activities.
  - The KCIA tank removal program was completed in the early 1990s.
  - Boeing additionally went through a program of replacing old tanks with new tanks in the late 1980s and has documented the tank removals. Attach as an appendix
  - Additionally, other KCIA tenants with USTs have been upgrading their UST systems in response to regulatory requirements.
  - There are some active heating oil tanks which are still in place for which KCIA has begun a proactive removal or replacement program, in anticipation of regulations covering heating oil tanks.

- **When UST regulations were first promulgated, KCIA sent out copies of the regulations to all tenants with potential UST compliance requirements.**
  - KCIA feels that all tenants presently are informed of and understand the UST regulations
  - KCIA performs an annual inquiry and inventory of tenant permit renewals for USTs.

- **All USTs known to have existed or that are currently present at KCIA have either been removed, or are permitted and in compliance with Ecology regulations.**
  - Attachment # presents an inventory of USTs currently in operation at KCIA and a map identifying the existing UST locations (Must get a copy of Boeing tank information from Jeff Winters).
  - Currently, KCIA operates only one UST present at the airport that is used for heating fuel storage.
  - KCIA also operates three ASTs for vehicle and generator fuel storage.
  - Tenants at KCIA own and operate all other fuel storage tanks (Attachment #).

3.2.2 Other Potential Groundwater Hazards

- **Other potential groundwater hazards may include sites where USTs were removed prior to federal and state UST regulations, locations of other remediated and/or investigated hazardous waste sites, and potential areas of concern based on previous site use.**

- **Because there were no UST investigation and cleanup requirements in the past, it is possible that petroleum contamination remains at locations where USTs were removed prior to implementation of UST regulations in 1988.**
  - USTs were removed from WWII facilities and the vehicle gas stations during the 1960s and 1970s.
  - The Texaco, Shell, Standard Oil, Chevron, and Phillips 66 fuel facilities were removed by the mid-1980s.
  - City Light had a 200,000 gallon bunker fuel AST which was removed in the late 1980s.
  - There is no record of investigation or removal of potentially contaminated soil associated with the removal of these fuel storage tanks.

- **At KCIA, there have been other commercial and industrial activities conducted throughout the past which may have caused soil or groundwater contamination.**
  - The known sites where soil and groundwater cleanup and/or investigation activities have occurred include the Fire Training Pit Site, the City Light facilities, former Linde Air Products site, and the site leased to Boeing for the EMF Facility.

- **Generally, there is limited analytical data for KCIA concerning soil and groundwater contamination resulting from other past commercial and industrial airport use.**
  - Currently, there is no area-wide groundwater monitoring program and no known soil or groundwater contamination to address.

- **KCIA recently evaluated past and present activities conducted at the airport to develop an overview of airport environmental and contamination issues.**
  - A summary of environmental concerns at the airport, including potential groundwater hazards, was presented in a report titled *Draft Final Summary of Environmental Issues* (BLACK & VEATCH 1995).
  - The *Summary of Environmental Issues* report includes a *Preliminary Environmental Inventory* map identifying potential groundwater hazards at the airport.
  - The KCIA SMP scope includes development of a future environmental compliance program, identification of environmental cleanup issues related to the City Light Steam Plant, and strategies for working with the Boeing Company regarding cleanup concerns.

3.3 Planned KCIA Actions to Mitigate Potential Groundwater Hazards

3.3.1 Fuel Storage Tanks

- **KCIA is planning the following actions to mitigate potential groundwater hazards associated with fuel storage tanks:**

  - Continued tracking of UST regulations and tenant UST permits;
  - Continuing a heating oil tank removal or replacement program in anticipation of heating oil tank regulations; and
  - Implementation of a more formalized environmental compliance and tenant audit program that will include fuel storage tank evaluation procedures.

3.2.2 Other Potential Groundwater Hazards

- **KCIA is planning the following actions to mitigate other potential groundwater hazards:**

- Identify environmental cleanup issues associated with the City Light Steam Plant;
- Identify strategies for working with the Boeing Company regarding environmental cleanup; and
- Implementation of a more formalized environmental compliance and tenant audit program that will include evaluation procedures that would eliminate or reduce potential groundwater hazards associated with commercial and industrial activities.

A list of additional potential groundwater hazards mitigation options is provided at the end of this outline. The additional potential groundwater hazards mitigation options are for discussion purposes only.

4.0 Surface Water Management

- **Surface water and stormwater impacts result from incidental releases from commercial and industrial activities for which no collection or treatment occurs or from accidental spills that are not contained prior to release to a receiving body of water.**
  - Federal, state, and local regulations require specific industries and activities to control stormwater discharges.
  - Federal and state regulations require industries which fall under specific categories to develop stormwater pollution prevention plans.
  - King County's Motion 9523 requires mitigation of activities that impact surface and stormwater.
  - KCIA has been proactive in identifying potential surface water and stormwater management issues and mitigating stormwater problems.

4.1 Regulatory Structure

Surface water and stormwater management regulations and guidance provide requirements for mitigating surface water and stormwater runoff impacts to the Duwamish River and associated creeks. Applicable federal, state, and local requirements include:

- EPA National Pollutant Discharge Elimination System (NPDES), 40 CFR, Part 122;
- Ecology NPDES Permit Program, Chapter 173-220 WAC;
- Stormwater Management Manual for the Puget Sound Basin (needs citation); and
- King County Surface Water Design Manual (needs citation).

This section will include a brief discussion of stormwater regulatory history and current regulatory requirements.

4.2 Surface Water Management Activities to Date

- **Surface water and stormwater management includes: the infrastructure that collects, treats, and transports runoff water to the receiving basin; and the operational source control and treatment management practices that are implemented to eliminate or reduce the level of contaminants that enter stormwater.**
  - Source control and management practices either eliminate or minimize the stormwater runoff impacts by specifying procedures for commercial and industrial activities.
  - Stormwater treatment infrastructure, such as oil/water separators, collect and allow treatment of incidental releases of oil or other floating products.
  - Additionally, established emergency spill procedures allow control and cleanup of accidental spills prior to release of the affected stormwater to the receiving basin.

- **KCIA promptly applied for and received an NPDES permit for stormwater when NPDES regulations were established.**
  - KCIA has prepared and implemented a Stormwater Pollution Prevention Plan (SWPPP) as required which includes operational source control and Best Management Practices (BMPs) that are established to eliminate or reduce impacts on stormwater from KCIA.
  - As part of the stormwater permitting process, KCIA distributed information and held tenant meetings to direct tenants to complete the appropriate NPDES permitting tasks.

- **Presently, KCIA maintains one NPDES permit and KCIA tenants maintain nine permits.**
  - KCIA is a co-permittee with all nine permitted tenants under the NPDES program.
  - Eight additional KCIA tenants submitted Notices of Intent for stormwater permits; however, Ecology did not require stormwater permits for the eight additional tenants.
  - KCIA continues to monitor stormwater regulatory requirements and tenant permits.

- **KCIA continues to perform tenant education regarding stormwater compliance and has recently conducted an informational inspection.**
  - KCIA asked the City of Seattle stormwater inspector to accompany KCIA in inspecting the Galvin facility.
  - KCIA plans to perform similar inspections with other tenants.

- **KCIA recently conducted a stormwater study to evaluate the stormwater drainage system, primarily for capacity concerns, but also to evaluate potential pollution prevention upgrade requirements.**
  - Boeing conducted a similar study in 1991 regarding stormwater concerns in the north field area.
  - The recent stormwater study recommends replacing and/or upgrading of oil/water separators, replacing several pumps, and increasing pipe size in segments of the stormwater system that the study indicates may require increased capacity.
  - As a result, several new oil/water separators and existing oil/water separator upgrades are planned for construction this summer.

- **KCIA is considering implementation of several joint stormwater collection system upgrade projects with Boeing, including installation of common oil/water separators which would receive water from the airfield and Boeing facilities.**
  - In general, current negotiations with Boeing about joint stormwater projects focus on the cost of the projects and how to split the cost most appropriately.
  - A white paper recently prepared by Dave Gehring describes the initiative for joint stormwater improvement projects with Boeing and other neighbors.

4.3 Proposed Actions to Mitigate Surface Water Impacts

- **KCIA is planning the following actions to mitigate the impact of KCIA surface water and stormwater on the Duwamish River and associated creeks include:**

  - Pursue cooperative approaches to surface water and stormwater management;
  - Replace baffel-type oil/water separators with coalescing plate type separators;
  - Install new coalescing plate oil/water separators in areas not served by existing oil/water separators;

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Additional Potential Mitigation Options

FOR DISCUSSION PURPOSES ONLY

Potential Groundwater Hazard

- Ecology negotiations for an area-wide soil and groundwater cleanup agreement.
- Area-wide groundwater investigation and monitoring program.

Surface Water Management

- Establish program of analytical testing of KCIA surface water/stormwater.
- Evaluate and identify presently unknown stormwater drainage system connections.